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BAYOU SEGNETTE WATERWAY, LA.

LETTER

FROM

THE SECRETARY OF THE ARMY

TRANSMITTING

A LETTER FROM THE CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY, DATED JANUARY 21, 1954, SUBMITTING A REPORT, TOGETHER WITH ACCOMPANYING PAPERS AND ILLUSTRATIONS, ON A REVIEW OF REPORTS ON, AND PRELIMINARY EXAMINATIONS AND SURVEYS OF, BAYOU SEGNETTE WATERWAY, LA., MADE PURSUANT TO SEVERAL CONGRESSIONAL AUTHORIZATIONS LISTED IN THE REPORT

JUNE 3, 1954—Referred to the Committee on Public Works and ordered to be printed, with two illustrations

DEPARTMENT OF THE ARMY,
Washington, D. C., May 24, 1954.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

DEAR MR. SPEAKER: I am transmitting herewith a report dated January 21, 1954, from the Chief of Engineers, Department of the Army, together with accompanying papers and illustrations, on a review of reports on, and preliminary examinations and surveys of Bayou Segnette Waterway, La., made pursuant to several congressional authorizations listed in the report.

In accordance with section 1 of Public Law 14, 79th Congress, and Public Law 732, 79th Congress, the views of the State of Louisiana are set forth in the enclosed communication, together with the views of the Department of the Interior in accordance with Public Law 732, 79th Congress.

Although the Bureau of the Budget advises that there is no objection to the submission of the report to the Congress, it states that no commitment can be made at this time as to when any estimate of appropriation would be submitted for construction of the project, if authorized by the Congress, since this would be governed by the President's budgetary objectives as determined by the then prevailing

fiscal situation. The complete views of the Bureau of the Budget are contained in the attached copy of its letter.

Sincerely yours,

ROBERT T. STEVENS,
Secretary of the Army.

COMMENTS OF THE BUREAU OF THE BUDGET

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D. C., April 28, 1954.

The honorable the SECRETARY OF THE ARMY.

MY DEAR MR. SECRETARY: This is in reply to Acting Secretary Slezak's letter of February 3, 1954, submitting a report of the Chief of Engineers on Bayou Segnette Waterway, La., prepared under authority contained in the River and Harbor Act of July 24, 1946, the River and Harbor Act of March 2, 1945, the Flood Control Act of December 22, 1944, and a resolution of the Committee on Rivers and Harbors, House of Representatives, adopted March 12, 1946.

The Chief of Engineers recommends authorization, subject to certain conditions of local cooperation, of a channel 9 feet deep and 60 feet wide from Company Canal at Westwego, La., to the Gulf Intracoastal Waterway, via Bayou Segnette, a land cut past the end of Lake Salvador, and Bayou Villiards. The estimated Federal cost of construction is \$520,000, and of annual maintenance to full project depth is \$11,250. The first cost to local interests would be \$64,000 for lands, easements, rights-of-way, spoil disposal area, relocations, and provision of terminal facilities. Local interests would also be required to maintain the adjacent Company Canal. The report states that, until better connecting waterways to the Gulf of Mexico are provided, maintenance of the project to a depth of 6 feet will be sufficient for the needs of commerce which is expected to move over the waterway. Under this condition total annual carrying charges are estimated at \$30,840. Benefits to this traffic, all of which is engaged in shrimping, are estimated in the report at \$36,300. The resultant benefit-cost ratio under these conditions is stated to be 1.18. After the connecting waterways are deepened, the shrimping industry in the area is expected to attract larger boats to this waterway, and maintenance of the full 9-foot project depth will be required. Annual carrying charges under these circumstances will be \$33,970, and annual benefits of \$46,400 are anticipated, giving a benefit-cost ratio which is stated to be 1.37.

I am authorized by the Director of the Bureau of the Budget to advise you that there would be no objection to your submission of the report to the Congress, but that no commitment can be made at this time as to when any estimate of appropriation would be submitted for construction of the project, if authorized by the Congress, since this would be governed by the President's budgetary objectives as determined by the then prevailing fiscal situation.

Sincerely yours,

CARL H. SCHWARTZ, Jr.,
Chief, Resources and Civil Works Division.

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COMMENTS OF THE STATE OF LOUISIANA

STATE OF LOUISIANA,
DEPARTMENT OF PUBLIC WORKS,
Baton Rouge, December 9, 1953.

Maj. Gen. S. D. STURGIS, Jr.,
Chief of Engineers,

Department of the Army, Washington, D. C.

DEAR GENERAL STURGIS: Reference is made to your letter of October 8, 1953, requesting the comments and recommendations of the State of Louisiana on the enclosed report entitled "Bayou Segnette Waterway, La." The Department of Public Works has reviewed the Bayou Segnette Waterway, La., Report as prepared by the Corps of Engineers, United States Army. This report and the recommendations contained therein are entirely satisfactory to the State of Louisiana.

At the present time oysters are being hauled by boat and truck from the oyster beds east of the Mississippi and south of New Orleans to seafood dealers located on Bayou Segnette. Since the opening of the Empire and Ostrica locks, it is now possible for oysters to be transported entirely by boat from this area to Bayou Segnette. This should result in additional tonnage not considered in the report.

On behalf of the State of Louisiana, I would like to urge that this project be included in the anticipated appropriation bill to be introduced to Congress in the spring of 1954.

Sincerely yours,

ROY T. SESSUMS, *Director.*

COMMENTS OF THE DEPARTMENT OF THE INTERIOR

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 7, 1954.

Maj. Gen. S. D. STURGIS, Jr.,
Chief of Engineers,

Department of the Army, Washington, D. C.

MY DEAR GENERAL STURGIS: This is in response to your letter of October 8, 1953, enclosing for our information and comment copies of your proposed report on a review of reports on, and preliminary examination and survey of, Bayou Segnette Waterway, La.

The report recommends improvement of the waterway from the head of Bayou Segnette to the Gulf Intracoastal Waterway by provision of a 9-foot channel with bottom width of 60 feet. The Federal first cost is \$520,000 for new work, and certain conditions of local cooperation are established.

Several of our agencies have reviewed the report and comments are provided as follows:

The Geological Survey notes that the proposed channel is in an area where, according to drillers' logs, the surface clay is generally in excess of 75 feet in thickness. Accordingly, a 9-foot channel would not appear to have any detrimental effects on ground water in the area.

It is pointed out by the Bureau of Mines that the Barataria and Westwego oilfields are in the vicinity of the proposed waterway.

However, the construction of a waterway 90 feet wide should not seriously affect present or future oil and gas operations.

The Fish and Wildlife Service has reviewed the proposed plans for development of Bayou Segnette and has found that they would have no significant detrimental effects on fish and wildlife resources. The improvement of navigation facilities would be a benefit to commercial fishery operations. The Service will appreciate opportunity to review definite plans for construction of the improvement if the project is authorized.

No other interests of the Department would be adversely affected. We have no objection to the proposed improvement of the Bayou Segnette Waterway. It should be of substantial benefit particularly in connection with the transportation of seafood by the shrimping industry.

We appreciate the opportunity of reviewing the report.

Sincerely yours,

FRED G. AANDAHL,
Assistant Secretary of the Interior.

REPORT OF THE CHIEF OF ENGINEERS, DEPARTMENT OF THE
ARMY

DEPARTMENT OF THE ARMY,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, D. C., January 21, 1954.

Subject: Bayou Segnette Waterway, La.

To: The Secretary of the Army.

1. I submit herewith for transmission to Congress the report of the Board of Engineers for Rivers and Harbors in response to resolution of the Committee on Rivers and Harbors of the House of Representatives, adopted March 12, 1946, requesting the Board to review the reports on Bayou Sennette, La., submitted January 14, 1937, with a view to determining if it is advisable to modify the recommendations contained in the said reports in any way at this time. It is also in review of reports on preliminary examination and survey of Bayou Segnette, La., authorized by the River and Harbor Act approved July 24, 1946; and of reports in partial response to the Flood Control Act of December 22, 1944 which authorizes preliminary examinations and surveys for flood control, rice irrigation, navigation, pollution, salt-water intrusion, and drainage on all streams and bayous in Louisiana lying between the East Atchafalaya Basin protection levee and the Mississippi River; and to the River and Harbor Act of March 2, 1945 which authorizes preliminary examinations and surveys for flood control, irrigation, navigation, and drainage, and for the prevention of stream pollution and salt-water intrusion on all streams and bayous in Louisiana lying between the East Atchafalaya Basin protection levee and the Mississippi River. This report is concerned with the improvement, primarily for navigation, of Bayou Segnette which is referred to in the resolution as Bayou Sennette, and with a channel thence to the Gulf Intracoastal Waterway. Other reports in response to the authorizations in the acts of 1944 and 1945 will be submitted later.

2. After full consideration of the reports secured from the district and division engineers, the Board recommends provision of a channel, with depth of 9 feet below mean low gulf level and bottom width of 60 feet, extending from Company Canal at Westwego, La., to the Gulf Intracoastal Waterway via Bayou Segnette, a land cut, and Bayou Villars, generally in accordance with the plans of the district engineer and with such modifications thereof as in the discretion of the Chief of Engineers may be advisable; at an estimated cost to the United States of \$520,000 for new work, and \$11,250 annually for maintenance including removal of hyacinths; provided that the channel be maintained to a depth of 6 feet at an estimated cost of \$8,000 annually until such time as in the discretion of the Chief of Engineers maintenance to a greater depth not to exceed 9 feet is economically advisable; and provided further, that local interests agree to: (a) furnish without cost to the United States all lands, easements, rights-of-way, and suitable spoil-disposal areas necessary for the new work and for subsequent maintenance when and as required; (b) accomplish and maintain without cost to the United States all necessary alterations in pipelines, and drainage and other facilities; (c) hold and save the United States free from damages due to construction and maintenance of the improvements; (d) maintain Company Canal free from vegetative growths obstructive to navigation and provide and maintain therein a minimum depth of 7 feet or a depth equivalent to that maintained in the Federal channel, whichever is the lesser, for a width of at least 30 feet, with transit at published rates open to all on equal terms; (e) provide and maintain a public wharf, not less than 20 feet wide and 200 feet long near the head of Bayou Segnette, accessible by highway and open to all on equal terms; and (f) cooperate with the Corps of Engineers in preventing the release of water hyacinths and other growths obstructive to navigation from local drainage ditches into the proposed improvement.

3. After due consideration of these reports, I concur in the views and recommendations of the Board.

S. D. STURGIS, Jr.,
Major General, Chief of Engineers.

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS

CORPS OF ENGINEERS, UNITED STATES ARMY,
BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
Washington, D. C., June 19, 1953.

Subject: Bayou Segnette Waterway, La.

To: The Chief of Engineers, Department of the Army.

1. This report is submitted in response to the following resolution adopted March 12, 1946:

Resolved by the Committee on Rivers and Harbors of the House of Representatives, United States, That the Board of Engineers for Rivers and Harbors be, and is hereby, requested to review the reports on Bayou Sennette, Louisiana, submitted January 14, 1937, with a view to determining if it is advisable to modify the recommendations contained in the said reports in any way at this time.

It is also in review of reports on preliminary examination and survey of Bayou Segnette, La., authorized by the River and Harbor Act approved July 24, 1946; and of reports in partial response to the Flood Control Act of December 22, 1944 which authorizes preliminary examinations and surveys for flood control, rice irrigation, navigation, pollution, salt-water intrusion, and drainage on all streams and bayous in Louisiana lying between the East Atchafalaya Basin protection levee and the Mississippi River; and to the River and Harbor Act of March 2, 1945 which authorizes preliminary examinations and surveys for flood control, irrigation, navigation, and drainage, and for the prevention of stream pollution and salt-water intrusion on all streams and bayous in Louisiana lying between the East Atchafalaya Basin protection levee and the Mississippi River. This report is concerned with the improvement, primarily for navigation, of Bayou Segnette which is referred to in the resolution as Bayou Sennette, and with a channel thence to the Gulf Intracoastal Waterway. Other reports in response to the authorizations in the acts of 1944 and 1945 will be submitted later.

2. Bayou Segnette is part of a chain of shallow waters extending from Company Canal at the town of Westwego, on the west bank of the Mississippi River opposite New Orleans, southward for 13.5 miles to the Gulf Intracoastal Waterway near Lafitte, La. Company Canal is an old waterway owned by the Westwego Canal and Terminal Co. It heads immediately landward of the Mississippi River levee, and extends south through the town for 1.4 miles. In 1945 residents of Westwego expended \$11,275 in redredging the canal. It has a surface width of 60 to 90 feet and a controlling depth of 5 feet below mean low gulf level. Its owners collect harbor fees for its use, averaging \$1.50 per boat per round trip. From the lower end of the canal the sluggish Bayou Segnette meanders southward for 6.5 miles to Bayou Bardeaux which extends about 1.25 miles to Lake Salvador. The route extends 4.5 miles across the east end of the lake and thence follows Bayou Villars 1.25 miles to the Intracoastal Waterway. No existing Federal project provides specifically for improvement of Bayou Segnette or the waterways thence to the Intracoastal Waterway. Under general provisions of law the United States accomplished minor snagging and shoal removal in Bayou Segnette during the years 1945 to 1949 at a cost of \$22,675 and similar work of temporary benefit in the upper 4 miles of the bayou since that time at a cost of \$23,207. However, the bayou is gradually reverting to its former condition. It has a surface width of 100 to 300 feet and a general depth of 4 feet. Its many snags, submerged stumps, and shoals restrict navigation and cause boat damages. The normal tidal range is 0.5 foot. Controlling depths are 2.8 feet at the outlet of Bayou Bardeaux and 3.5 feet at the entrance to Bayou Villars. The Gulf Intracoastal Waterway is a Federal improvement 12 feet deep and 125 feet wide. Seafood boats operating between Westwego and Gulf of Mexico waters have a choice of two principal routes south of Bayou Villars. The most direct is the Barataria Bay Waterway, with Federal project depth of 5 feet for a width of 50 feet, which extends south for 38 miles to the gulf at Grand Isle. The other is via the Intracoastal Waterway westward for 20 miles to Larose and thence south 37 miles via Bayou Lafourche which has a Federal project depth of 6 feet and width of 60 feet.

3. Westwego is a seafood-processing community with a population of about 8,300. Lands along the water route from Westwego to the Intracoastal Waterway are partially wooded swamps and marshes with few inhabitants. Establishments on Company Canal include seven seafood-processing plants the largest of which is at its junction with Bayou Segnette, a plant for processing seafood byproducts, deep-freeze plants, food lockers, ice storage facilities, a fueling station for fishing craft, and minor facilities for boat repair and construction. An oilfield has been established in Lake Salvador, and others are nearby. Existing terminal facilities consist of 58 small private wharves, bulkheads, and piers on Company Canal and a bulkhead with concrete deck at the upper end of Bayou Segnette. Westwego is served by railroads and highways. In 1948 seafood companies at Westwego received by truck, in part from considerable distances, about 2,660 tons of shrimp, 506 tons of crabs, and 787 tons of oysters; and by boat 440 tons of shrimp. The waterway commerce also included an estimated 2,300 tons of ice. In that year shrimping vessels, most of which have fully loaded drafts of 3 to 6.5 feet, made approximately 500 round trips into the port. Following the recent temporary improvement of Bayou Segnette, the commerce in 1951 increased to 4,875 tons carried in 1,520 round trips of shallow-draft vessels. This commerce consisted of 1,649 tons of seafood inbound, 3,132 tons of ice outbound, 50 tons of machinery, and 44 tons of Government material used in waterway improvements.

4. Local interests desire a channel 9 feet deep and 60 feet wide between Company Canal and the Intracoastal Waterway at Bayou Villars. They state that if an adequate channel were available so that fishing boats could reach Westwego with safety and ease, substantial benefits would result from reduction in the cost for transporting the seafood by diversion of the truck deliveries to boat, lessened deterioration of the seafood en route, and avoidance of damage and delays to boats which navigate the existing channel. They point out that the use of deeper-draft boats in recent years has accentuated the need for improvement. Local interests indicate that they will meet the requirements of local cooperation.

5. The district engineer notes that shrimping vessels with drafts of 5 feet or less now navigate the Barataria Bay Waterway and Bayou Lafourche but cannot reach Westwego without experiencing damages and delays. Preliminary examinations considering deepening these waterways to at least 9 feet have been favorable and surveys in more detail have been initiated. The trend in construction of shrimping vessels is toward ships with drafts in excess of 6 feet. The district engineer presents a plan for providing, between the lower end of Company Canal and the Intracoastal Waterway, a channel 60 feet wide with a depth of 9 feet below mean low gulf level. His plan consists of improvement of Bayou Segnette from Company Canal southward for about 5.7 miles and thence excavation through lands east of Lake Salvador for 6.8 miles to Bayou Villars near its junction with the Intracoastal Waterway. This land-locked route is selected, in preference to the route through Lake Salvador, to provide better navigating conditions and to avoid the difficulties and high cost of maintenance of a 9-foot channel across the shallow lake. The cost to the United States for clearing and dredging the waterway is estimated, on the basis of September 1950 prices, at \$495,750. The first

cost to local interests for furnishing rights-of-way and spoil-disposal areas, lowering 2 pipe lines, constructing a public wharf near the head of Bayou Segnette, and dredging to provide a depth of 7 feet for a width of 30 feet in Company Canal, is estimated at \$58,375. The estimated Federal annual carrying charges, with \$11,250 for maintenance including hyacinth removal, are \$30,520, and the non-Federal annual carrying charges, \$4,560, a total of \$35,080.

6. Assuming that the Barataria Bay Waterway and Bayou Lafourche are subsequently deepened to 9 feet and that the amount of seafood received at Westwego in 1948 is representative of the future, the district engineer estimates the benefits of his plan at \$42,725 annually all in connection with shrimping activities since he considers it unlikely that crabs and oysters would be received by boat. The evaluated benefits consist of \$24,885 from savings in transportation cost and in the reduction of deterioration of shrimp by diverting truck deliveries to boat deliveries, \$4,640 from reduction in the cost of transporting shrimp now received by boat, and \$13,200 from reduction in damage to boats. The benefit-cost ratio is 1.22. The district engineer recommends the improvement subject to the conditions that local interests provide rights-of-way and spoil areas, alter pipeline and other facilities as necessary, hold the United States free from resulting damages, provide a depth of 7 feet for a width of 30 feet in Company Canal with transit at published rates open to all on equal terms, keep this canal free of growths obstructive to navigation, provide a public wharf, and cooperate in preventing release of obstructive plant growths from drainage ditches into the proposed channel. The division engineer concurs.

7. Local interests were notified of the nature of the reports of the district and division engineers and given an opportunity to present additional information to the Board. No communications have been received.

VIEWS AND RECOMMENDATIONS OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS

8. The Board of Engineers for Rivers and Harbors notes that the district engineer's estimates of construction costs for the improvement are based on September 1950 prices and that the annual carrying charges are computed with higher interest rates than the 2.5 percent now customarily used. With present prices and this lower interest rate, the Board estimates the first cost at \$520,000 to the United States and \$64,000 to local interests and the total annual carrying charge at \$33,970. Prices for shrimp have increased about 50 percent since September 1950 and other prices applicable to the benefits have also increased.

9. The district engineer credits the proposed improvement for savings in transportation costs and reduction of shrimp losses based on the annual diversion of 9,242 barrels of shrimp from truck delivery to boat delivery. Included therein are 1,242 barrels now trucked to Westwego from Pointe a la Hache and Venice on the Mississippi River. The Board doubts that these 1,242 barrels will be diverted from truck to boat in view of the circuitry of water routes between those points and Bayou Segnette. In its opinion benefits credited to the improvement of Bayou Segnette in connection with the remain-

ing 8,000 barrels should be limited to the advantages of boat delivery, as compared with truck delivery, from Lafitte, adjacent to the lower end of the proposed Bayou Segnette improvement. The advantages of boat delivery between gulf waters and Lafitte are creditable to the waterways below Lafitte rather than to the improvement of Bayou Segnette. Of these shrimp, 4,000 barrels now reach Lafitte by boat and are trucked from there. The remainder are trucked from Golden Meadow on Bayou Lafourche and Grand Isle at the gulfward extremity of the Barataria Bay Waterway. From a consideration of the drafts of shrimp boats it is concluded that about 1,000 barrels now trucked from these remote points could reasonably reach Lafitte by boat via the Federal channels now authorized. Since trucking from Lafitte is required in any event, the water routes are not sufficiently advantageous to attract this commerce at present. The remaining 3,000 barrels are included in the prospective divertible commerce on the assumption that Bayou Lafourche and the Barataria Bay Waterway are also further improved to depth of 9 feet, or that permanent alternative channels become available, to permit the larger shrimp boats to reach the Bayou Segnette Waterway. The district engineer indicates that the Federal project depth of 6 feet in Bayou Lafourche is a controlling factor in the movement of commerce between the gulf and the Intracoastal Waterway. Subsequent to preparation of his report a change in that respect has occurred. Although the project depth is 6 feet, this depth occurs only in the section below Leeville which is near the gulf. Depths in Bayou Lafourche between Leeville and the Intracoastal Waterway are 9 feet or more. At Leeville the Southwest Louisiana Canal crosses Bayou Lafourche in an east-west direction. This canal, formerly a toll waterway, was purchased in 1951 by the State of Louisiana, with the aid of oil companies, and made toll free. Shrimp boats can at present reach the gulf via this canal eastward to Caminada Bay, a marked route across that bay, and Barataria Pass at Grand Isle. Although no specific depth is assured, this route is being used by barges drawing about 6.5 feet. There is some possibility that this may develop into an assured alternative route enabling shrimp boats normally requiring a 9-foot channel to reach the Bayou Segnette Waterway without further improvement of either Bayou Lafourche or the Barataria Bay Waterway.

10. Using present prices and prospective diversion of 8,000 barrels of shrimp from trucking to boat transportation as discussed above, the Board estimates the annual benefits for improvement of the Bayou Segnette Waterway to depth of 9 feet as follows:

Reduction in shrimp losses, 2.5 percent of 8,000 barrels at \$75.....	\$15, 000
Saving in transport cost, 8,000 barrels at \$1.51, less \$320 harbor fees.....	11, 800
Timesaving for boats using Bayou Segnette.....	5, 100
Reduction in boat damages.....	14, 500
Total annual benefits.....	46, 400

With annual charges of \$33,970, the benefit-cost ratio is 1.37.

11. The above is applicable if the gulfward waterways are also improved so that there is an assured permanent route whereby the larger shrimp boats can navigate between the gulf and Lafitte. Until such a route is available, maintenance of a 6-foot channel in the

Bayou Segnette improvement would be reasonably sufficient. In view of the highly probable future need for a depth of 9 feet in Bayou Segnette, the existence of snags, stumps, and wooded sections, and the erodible nature of the banks, the Board believes that the initial construction should be accomplished to the dimensions proposed by the district engineer. Assuming that the improvement is so constructed, and maintained only to a depth of 6 feet, the estimated cost for maintenance is \$8,000 annually. With this cost the estimated annual carrying charges are \$30,840. Annual benefits for maintaining a 6-foot channel based upon diversion to boat delivery of the 5,000 barrels of shrimp, which can reasonably reach Lafitte over the existing Federal channels, are estimated as follows, using present prices:

Reduction in shrimp losses, 2.5 percent of 5,000 barrels at \$75-----	\$9, 400
Saving in transport cost, 5,000 barrels at \$1.51, less \$200 harbor fees----	7, 300
Time saving for boats using Bayou Segnette-----	5, 100
Reduction in boat damage-----	14, 500
Total annual benefits-----	36, 300

For these conditions the benefit-cost ratio is 1.18. The Board concludes that the proposed 9-foot channel should be constructed and that maintenance work should be limited to assuring a depth of 6 feet until such time as in the discretion of the Chief of Engineers full maintenance is economically advisable.

12. Accordingly, the Board recommends provision of a channel, with depth of 9 feet below mean low gulf level and bottom width of 60 feet, extending from Company Canal at Westwego, La., to the Gulf Intracoastal Waterway via Bayou Segnette, a land cut, and Bayou Villars, generally in accordance with the plans of the district engineer and with such modifications thereof as in the discretion of the Chief of Engineers may be advisable; at an estimated cost to the United States of \$520,000 for new work, and \$11,250 annually for maintenance including removal of hyacinths; provided that the channel be maintained to a depth of 6 feet at an estimated cost of \$8,000 annually until such time as in the discretion of the Chief of Engineers maintenance to a greater depth not to exceed 9 feet is economically advisable; and provided further, that local interests agree to (a) furnish without cost to the United States all lands, easements, rights-of-way, and suitable spoil-disposal areas necessary for the new work and for subsequent maintenance when and as required; (b) accomplish and maintain without cost to the United States all necessary alterations in pipelines, and drainage and other facilities; (c) hold and save the United States free from damages due to construction and maintenance of the improvements; (d) maintain Company Canal free from vegetative growths obstructive to navigation and provide and maintain therein a minimum depth of 7 feet or a depth equivalent to that maintained in the Federal channel, whichever is the lesser, for a width of at least 30 feet, with transit at published rates open to all on equal terms; (e) provide and maintain a public wharf, not less than 20 feet wide and 200 feet long near the head of Bayou Segnette, accessible by highway and open to all on equal terms; and (f) cooperate with the Corps of Engineers in preventing the release of water hyacinths and other growths obstructive to navigation from local drainage ditches into the proposed improvement.

For the Board:

B. L. ROBINSON,
Major General, Chairman.

REPORT OF THE DISTRICT ENGINEER

SYLLABUS

Bayou Segnette Waterway is used by fishing boats to supply the packing plants at the head of Bayou Segnette and on Company Canal with fresh seafood for canning; to reach repair facilities; and to obtain supplies, fuel, and ice.

The shallow controlling depths in the bayou and over the bars in Lake Salvador and Bayou Bardeaux and numerous underwater obstacles make the existing waterway difficult for water traffic. In consequence, most of the seafood is trucked to the packing plants from distant ports. To remedy this unfavorable condition, a snag-free channel of adequate dimensions is desired by local interests.

The most practicable plan for meeting the desires of the majority of local interests is found to be in the provision of a snag-free 9- by 60-foot channel, following the existing route from the head of Bayou Segnette to approximate mile 7.25, thence southeasterly via a new land cut of the same dimensions, east of Lake Salvador, to a junction at new mile 13.8 with Bayou Villars at a point near the Intracoastal Waterway; subject to stated conditions of local cooperation.

The plan of improvement is justified in view of the estimated savings to the shrimping industry alone. Additional incidental benefits will result from the creation of a waterway leading into Westwego by producing recreational benefits, by providing a needed harbor for yachts and miscellaneous watercraft; and from general enhancement to the living conditions of the surrounding community. Unforeseeable benefits are considered to be a future possibility, such as the industrial development now taking place at Empire, La., on the waterway, Empire to the Gulf of Mexico.

The Federal first cost of the project is estimated at \$495,750 and the total annual charges are estimated at \$35,080. The annual benefits are estimated at \$42,725. The total benefit to cost ratio of 1.22 to 1 indicates the plan is justified.

CORPS OF ENGINEERS, UNITED STATES ARMY,
OFFICE OF THE DISTRICT ENGINEER,
NEW ORLEANS DISTRICT,
New Orleans, La., March 1, 1951.

Subject: Survey Report of Bayou Segnette Waterway, La.

Through: The Division Engineer, Lower Mississippi Valley Division,
Corps of Engineers, Vicksburg, Miss.

To: The Chief of Engineers, Department of the Army, Washington
25, D. C., Attn: ENGWD

1. *Authority.*—This report is submitted in: (a) Response to the following authorizations: (1) Resolution adopted March 12 1946:

Resolved by the Committee on Rivers and Harbors of the House of Representatives, United States, That the Board of Engineers for Rivers and Harbors be, and is hereby, requested to review the reports on Bayou Sennette, La., submitted January 14, 1937, with a view to determining if it is advisable to modify the recommendations contained in the said reports in any way at this time.

(2) River and Harbor Act approved July 24, 1946 (Public Law 525, 79th Cong., 2d sess.):

SEC. 7. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys to be made at the following-named localities:

* * * * *

Bayou Segnette, La.

* * * * *

(b) Partial response to the following authorizations: (1) Flood Control Act approved December 22, 1944 (Public Law 534, 78th Cong., 2d sess.):

* * * * *

SEC. 11. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys for flood control and allied purposes * * * to be made * * * which include the following-named localities:

* * * * *

For flood control, rice irrigation, navigation, pollution, salt-water intrusion and drainage * * *; on all streams and bayous in Louisiana lying between the East Atchafalaya Basin protection levee and the Mississippi River.

(2) River and Harbor Act approved March 2, 1945 (Public Law 14, 79th Cong., 1st sess.):

SEC. 6. The Secretary of War is hereby authorized and directed to cause preliminary examinations and surveys to be made at the following-named localities:

For flood control, irrigation, navigation, and drainage and for the prevention of stream pollution and salt-water intrusion * * * on all streams and bayous in Louisiana lying between the East Atchafalaya Basin protection levee and the Mississippi River;

(3) The status of response to the authorizations in paragraph 1 (b) (1) and (2) is tabulated below. No other streams are being considered at this time.

Streams being considered	Preliminary examination dated—	Survey dated—	Project authorized by—
Waterway Empire to Gulf of Mexico.....	Mar. 29, 1946	Apr. 10, 1946	River and Harbor Act approved July 24, 1947. ¹
Bayons Terrebonne, Petit Caillon, Grand Caillon, and Dularge.	Jan. 20, 1947	(2)	
Atchafalaya River, Morgan City to the Gulf of Mexico.	Mar. 4, 1943	(2)	
Bayou Segnette Waterway.....	Apr. 9, 1948	Mar. 1, 1951	
Bayou Chevreuil.....	July 20, 1948		
Bayou Black.....	Sept. 27, 1948		
Bayou Lafourche.....	Oct. 4, 1948		
Barataria Bay Waterway.....	Oct. 29, 1948		
Lafourche-Jump Waterway.....	Dec. 1, 1948		

¹ See H. Doc. No. 697, 79th Cong., 2d sess.

² Survey report is pending settlement of right-of-way problem.

(c) Assignment of the examination to the division engineer, Lower Mississippi Valley Division, by letter from the Chief of Engineers dated March 9, 1945, CE-SPEWR (Assignment of Examinations, River and Harbor Act approved March 2, 1945).

(d) Assignment to the district engineer, New Orleans district, by letter from the division engineer, Lower Mississippi Valley Division, dated December 4, 1945, LMVEE (Assignment of Examinations, River and Harbor Act approved March 2, 1945).

(e) The report of preliminary examination dated April 8, 1948, was reviewed by the Board of Engineers for Rivers and Harbors and this survey authorized by the Chief of Engineers October 7, 1948.

2. *Scope of survey.*—A hydrographic survey was made of the existing waterway from Company Canal to the Intracoastal Waterway, gulf section at Bayou Villars, consisting of:

- (a) Control line.
- (b) Cross-sections at one-half-mile intervals in the bayou.
- (c) Cross-sections across the bars in Lake Salvador.
- (d) Cross-sections at 1-mile intervals across the channel in Lake Salvador.
- (e) Centerline profile by fathometer.
- (f) Soil borings at 1½-mile intervals to an elevation of 20 feet below mean low gulf level (MLG).

3. An economic survey included a study of the seafood and oil industries. A general study included visual reconnaissance of the existing waterway and recommended alinement of the proposed improvement from Company Canal to the Intracoastal Waterway, study of maps, charts, aerial photographs, prior reports on the waterway, and consultation with the following agencies and interested parties:

- (a) Louisiana Department of Public Works.
- (b) Louisiana Department of Wildlife and Fisheries.
- (c) Louisiana Department of Highways.
- (d) Jefferson Parish Police Jury.
- (e) United States Fish and Wildlife Service.
- (f) United States Soil Conservation Service.
- (g) Ed Martin Seafood Co.
- (h) Thomas Jordan, Inc.
- (i) Robinson Canning Co.
- (j) Walter M. Hudson Seafood Co.
- (k) Cutcher Canning Co.
- (l) Westside Commission Co.
- (m) F. Collins & Son.
- (n) Valence Seafood Co.
- (o) W. A. Kass, wholesale fish dealer and icehouse operator.
- (p) Louisiana Land & Exploration Co.
- (q) W. A. Muller, auto and boat dealer.
- (r) Tibo Shipyard.
- (s) Marcombe Shipyard.
- (t) Gulf Refining Co.
- (u) Texas Co.

The official views of the United States Department of the Interior, Fish and Wildlife Service, are contained in appendix II.¹ The Louisiana Department of Public Works was among the original sponsors of the improvement and is therefore in favor of the project. Its official views in favor of the project are expressed in a letter from the Director dated November 20, 1950, a copy being attached as appendix VII.¹ The official views of the Police Jury of the Parish of Jefferson, in favor of the project and of the terms of local cooperation, are contained in a letter dated December 29, 1950, a copy being attached as appendix VIII.¹ The official views of the Louisiana Department of Wildlife and Fisheries have not been received to date.

4. *Description.*—Bayou Segnette Waterway is a natural water traffic route, located in the lowlands of Jefferson Parish just south of the Mississippi River opposite New Orleans. The waterway heads at the mouth of an artificial canal known as Company, or Westwego, Canal and ends where Bayou Villars is cut by the Intracoastal Waterway (gulf section). The existing channel includes, or traverses in turn, Bayou Segnette, Bayou Bardeaux, Lake Salvador, and Bayou Villars, and is 13.5 miles long.

5. Though not included in the plan of improvement, the commencement of this traffic route and the origin or destination of the major portion of its traffic is the Company, or Westwego Canal. This canal was formerly connected to the Mississippi River by a lock and was part of a private toll waterway extending from the Mississippi River to Morgan City. The canal company, authorized by act of Louisiana

¹ Not printed.

Legislature in 1827, was known as the Barataria & Lafourche Canal Co. The authorized section of the canal in 1827 was 6 feet by 40 feet, which was reduced to 6 feet by 25 feet in 1830. The State of Louisiana was the largest shareholder in the original company, but the original act of 1827 was later amended several times and the company was reorganized, then sold to private owners. The present owner is the Westwego Canal & Terminal Co. The lock was not used for several years prior to its abandonment and complete closure in 1940, when the right bank Mississippi River levee was extended across the old lock location. The canal, heading at Louisiana State Highway No. 30 which is parallel to and adjacent to the levee, extends southerly 1.4 miles, where it merges with the head of Bayou Segnette. The controlling depth of the canal is 5 feet below mean low gulf level (MLG) with a surface width of 60 to 90 feet.

6. Bayou Segnette is a sluggish natural bayou 6.5 miles long, extending from Company Canal to Bayou Bardeaux. Surface widths vary from 100 feet to 300 feet. At the date of this report the general depth of Bayou Segnette is -4 feet MLG with mud lumps making the controlling depth -2.5 feet MLG. The bayou is tidal with a normal variation of about 0.5 foot. Wind tides varying as much as 3 feet have been induced by hurricanes, while northerners have depressed the water surface as much as 0.2 of a foot below MLG.

7. Since no gages or discharge stations are maintained on the bayou, records of low water, mean stage, high water, and discharge are not available. The volume of traffic reaches its peak in the summer months and is lowest from December to March.

8. Bayou Bardeaux, also known as Cataouatche Pass, connects Bayou Segnette with Lake Salvador. The surface width of Bayou Bardeaux varies from 450 feet to 1,800 feet, and present depths vary from -2.8 feet MLG to -12 feet MLG. From Bayou Bardeaux the waterway extends 4.5 miles across the eastern end of Lake Salvador. The present depth of the channel in Lake Salvador is -6 feet MLG, except at the entrances to Bayous Bardeaux and Villars, where bars reduce controlling depths to 2.8 feet and 3.5 feet MLG respectively.

9. From Lake Salvador the existing waterway enters Bayou Villars and extends 1.25 miles to its junction with the Intracoastal Waterway (gulf section), 12 feet by 125 feet. The surface width of Bayou Villars varies from 350 feet to 1,300 feet, with a least depth at the present time of -7.5 feet MLG and a maximum depth of -21 feet MLG. From the end of the Bayou Segnette Waterway, the Barataria Bay Waterway affords an outlet to the Gulf of Mexico.

10. The drainage function of Bayou Segnette is local. Numerous canals and ditches, none of which are navigable, are located in the rear of the open lands along the river to intercept municipal and field drainage and discharge it into Bayou Segnette via a pumping station at mile 1.6. Along the east bank of the bayou other canals drain westward into it from the Lafitte Highway ridge (Louisiana Highway No. 30). Drainage eastward into the west side of the bayou is negligible owing to the proximity of the large sump area encompassing Lakes Cataouatche and Salvador. Flow in the bayou is necessarily intermittent depending on tides and local rainfall.

11. No bridges cross Bayou Segnette Waterway. Two railroad swing bridges carry tracks of Southern Pacific and Texas & Pacific branch lines across Company Canal seven-tenths of a mile from the

Mississippi River. Their horizontal clearances are respectively 31.0 and 38.5 feet.

12. Reference is made to United States Coast and Geodetic Survey Chart 1050; United States Geological Survey quadrangles of the area, and to the attached plates.

13. *Tributary area.*—The town of Westwego, with a 1950 population of 8,281, is located near the head of the waterway. About 400 inhabitants live along Company Canal. The area between Westwego and Algiers is highly industrialized in lines closely associated with the agricultural, mineral, and marine products of the region. Westwego is served by branch lines of the Southern Pacific lines, Texas & Pacific Railroad and other lines through interchange with the New Orleans Public Belt Railroad. Hard-surfaced Louisiana State Highway No. 30 parallels the Mississippi River on its right bank, and connects with U. S. Highway No. 90 where the latter crosses the Mississippi River over the Mississippi River Bridge, about $1\frac{1}{4}$ miles west of Westwego.

14. Highways parallel each side of Company Canal. The highway along the right bank of Company Canal is paved from mile 0.7 to mile 1.3, whence it extends unpaved along Bayou Segnette to mile 2.0, whence it turns west and terminates at Churchill Farms, a former privately financed reclamation project, which has deteriorated into a fishing and hunting lake, open to the public. The highway along the left or east bank of Company Canal is paved from Louisiana Highway No. 30 to mile 1.3, and loose surfaced to the pumping station at mile 1.6 on Bayou Segnette.

15. In Westwego, on Company Canal and on Bayou Segnette, 7 well-known seafood packers and shippers operate 7 seafood plants, a 52-ton iceplant, a recently completed dehydrating plant for processing shrimp hulls and crab shells into poultry feed and fertilizer, and 3 deep-freeze plants with 15,000, 20,000 and 20,000 pounds, respectively, daily freezing capacity, 3 food lockers for 150,000, 200,000, and 400,000 pounds respectively, 2 ice-storage facilities of 100-tons capacity each, and an 80,000-gallon capacity fueling station for servicing fishing craft exclusively. Three boatyards with ways on Company Canal build and repair fishing vessels, work boats and pleasure craft up to 60 feet in length and 70-ton capacity. A firm building marsh buggies and pontoons for sale or rent to oil companies and others for work in marsh areas, recently located its plant on Company Canal.

16. Lake Salvador is a shallow, flat-bottomed tidal lake some 70 square miles in area, that has long been a profitable source of shrimp and crabs, although in recent years its productivity of these crustacea has declined. Today, an oilfield is established in the approximate center of the lake. Not far away are the Bayou Couba, Bayou Perot, Barataria, Delta Farms, and Des Allemands oilfields. These fields are readily accessible through channels across Lake Salvador which are maintained by passage of boats to approximate dimensions of 5 feet by 40 feet MLG; and via channels leading off the Intra-coastal Waterway.

17. Bayou Bardeaux and the lower reaches of Bayou Segnette Waterway traverse marshlands, while the upper reaches of Bayou Segnette are in wooded swamp. Except for a few fishermen and trappers there are no inhabitants adjacent to the waterway from mile 2 to mile 15. Indigenous fauna include muskrat and other fur-bearing

animals that provide trapping. The area also affords seasonal hunting for waterfowl and deer.

18. *Prior reports.*—Prior reports authorized by Congress which have been submitted on Bayou Segnette are:

Type	Date	Recommendation	Published
Preliminary examination ¹	Oct. 18, 1915	(Unfavorable for Bayou	} H. Doc. 200-65-1. Do.
Survey ¹	Mar. 1, 1917	{ Segnette	
Preliminary examination.....	Jan. 21, 1931	Unfavorable.....	Not published.
Do ²	Mar. 9, 1936	do.....	Do.
Do.....	Apr. 8, 1948	Favorable for survey.....	Do.

¹ Project titled "Barataria Bay, La., and Connecting Waters."

² Report titled "Bayou Sennette, La."

19. *Existing Corps of Engineers' project.*—No Corps of Engineers' project exists on Bayou Segnette. Bayou Segnette connects through Lake Salvador with the Gulf Intracoastal Waterway, a Federal project, which in turn connects with the Mississippi River, Barataria Bay Waterway, and Bayou Lafourche, all Federal projects. The Gulf Intracoastal Waterway between Apalachee Bay, Fla., and the Mexican border is a 12- by 125-foot project. The Mississippi River, Baton Rouge to the Gulf of Mexico, La., is a 35-foot project from Baton Rouge to New Orleans over varying bottom widths, and a 40-foot project from New Orleans to the Gulf over varying bottom widths. The Barataria Bay Waterway is a 5- by 50-foot project to the Gulf of Mexico, while the project on Bayou Lafourche is 6 by 60 feet from Larose to the gulf. Bayou Lafourche and the Barataria Bay Waterway are the routes most frequently used by the fishing vessels in traveling from the Gulf of Mexico and the gulf area to Westwego. The Federal project on Barataria Bay Waterway extends 38 miles southward to the gulf, while that on Bayou Lafourche extends southward from Larose 37 miles to the Gulf of Mexico.

20. *Local cooperation on existing and prior projects.*—Since there is no existing project on this waterway, there is no existing local cooperation.

21. *Other improvements.*—The early owners of Company Canal dredged four cutoffs in Bayou Segnette to shorten and improve the route into Westwego. There is no available record as to when they were dredged. Tolls are no longer charged for transit of these cutoffs. During April and May 1945, residents of Westwego subscribed the sum of \$11,275 which was expended by them in dredging Company Canal to dimensions of approximately 6 by 40 feet.

22. *Terminal and transfer facilities.*—Existing terminal facilities consist solely of 58 small private wharves, bulkheads, and piers varying in size from 2 by 12 feet to 20 by 80 feet on Company Canal, and 1 timber bulkhead with concrete deck 365 feet in length on Bayou Segnette. The Company Canal, even though it is not under consideration in this report for improvement by the United States, provides an excellent terminal and harbor area for the port of Westwego, needing only slight deepening and normal maintenance by its owners, or by civic subscription as indicated under "Other improvements." Ample stores and facilities are located on Company Canal for icing and supplying, building, and repairing boats. The canal and the upper portion of Bayou Segnette are well served by highways and

two branch railroads. In addition to these facilities there is ample room for expansion by other industries, such as oilfield supply depots, lumber companies, and shipbuilders. The preliminary examination of this waterway dated April 8, 1948, contained the statement that "No tolls are charged boatowners for the use of Company Canal, but a fee is assessed by wharfowners for wharf privileges." Further investigation shows this to be in error; and that the Westwego Canal & Terminal Co. collects a harbor fee averaging \$1.50 per boat per round trip. Private wharfowners lease or buy sites for their wharves from the same company.

23. *Improvement desired.*—The public hearing held at Westwego on March 20, 1947, was attended by State and parish officials and some 90 interested people consisting of bankers, manufacturers, seafood packers, fishermen, merchants, farmers, representatives of sulfur and oil interests, and others. At this hearing the Louisiana Department of Public Works presented a brief in which the snagging and enlarging of Bayou Segnette from the lower end of Company Canal to Lake Salvador was requested. Approval of this request was voiced by the chairman and members of the Jefferson Parish Fishermen's Association, by owners of packing plants and wholesale food dealers, and by a member of the Jefferson Parish police jury. They desired the removal of stumps, snags, fallen trees, and branches from the waterway, and enlargement of the channel to adequate depth and width. The dimensions desired varied from 9 by 40 to 12 by 60 feet. In justification of the need for improvement it was claimed at that time that the then existing controlling depth of 2.5 feet in Bayou Segnette, and the presence of serious obstructions to navigation, were detrimental to both seafood packers and fishermen.

24. A public hearing was held in Westwego on February 8, 1949, in connection with this survey report. This hearing was attended by 53 persons including State and parish officials, engineers, surveyors, attorneys, merchants, seafood canners and dealers, fishermen, and railroad and oil-company representatives. Summarizing the desires of local interests, it was requested that Bayou Segnette Waterway be improved by clearing the channel of snags and obstructions and dredging to a 9- by 60-foot channel. Support of this request was based on past traffic, or the decline of traffic due to inadequate channel dimensions, on obstructions and damage to boats that use the existing channel, and on future growth of traffic if a channel were available for larger boats, as the trend is to vessels of greater draft. No opposition was voiced to improving Bayou Segnette Waterway.

25. At the hearing, a verbal presentation was made favoring relocation of the waterway throughout its length to a new land cut east of Lake Salvador.

26. *Commerce.*—Bayou Segnette connects with navigable waterways which give access to all shrimping areas in the State of Louisiana, but because of the difficulties attending navigation, boatowners are reluctant to traverse it. Therefore, many boats which would otherwise make Westwego their normal port of discharge have adopted the policy of landing at other available points, unloading from boat to truck with attendant re-icing at the rate of that amount of crushed ice equal to 80 percent of the weight of shrimp; and hauling their shrimp via truck to Westwego. Universal practice in the industry is that the shrimp remain in the ownership of the fishermen until they have been

unloaded at the cannery and have passed over an inspection belt and the mutilated and otherwise unacceptable shrimp have been discarded. The remaining shrimp are then purchased by the cannery on a weight basis of 210 pounds per barrel, the cannery bearing one half the cost of re-icing the truck. These losses by mutilation and dehydration resulting from trucking average 4 percent of the original catch. The added expenses of trucking, weight loss, and half the re-icing are borne directly by the fishermen.

27. Bayou Segnette Waterway is not a Federal project, nor does it form a link in any existing project. Therefore, statistics voluntarily reported under the provisions of section 11 of Rivers and Harbors Act approved September 22, 1922, are incomplete for the purpose of this report. Seven seafood companies are located in Westwego. Six of them process shrimp for market and one specializes in the handling of crabs and the processing of crabmeat. Two of the plants handle oysters as a regular practice during the oyster season (from September through May). One cans oysters and the other furnishes them to the counter trade.

28. A study of the existing records of the seafood companies showed the following shrimp, crabs and oysters handled:

Commerce in tons

Year	Shrimp		Crabs		Oysters		Total		Grand total
	By boat	By truck	By boat	By truck	By boat	By truck	By boat	By truck	
1935	1,042						1,042		1,042
1936	1,254						1,254		1,254
1937	1,451						1,451		1,451
1938	870	128					870	128	998
1939	1,414						1,414		1,414
1940	1,330						1,330		1,330
1941	1,008	553					1,008	553	1,561
1942	1,191						1,191		1,191
1943	662						662		662
1944	1,122	492					1,122	492	1,614
1945	858	318	4				862	318	1,180
1946	890	674	460	500	25	100	1,384	1,274	2,658
1947	495	1,645		303		350	495	2,298	2,793
1948	441	2,653		506		787	441	3,956	4,397

In 1948 a total of 29,494 barrels (210 pounds each), or 3,100 tons of shrimp were reported to the Louisiana Department of Wildlife and Fisheries as having been received by the seafood companies in Westwego. These official State records, rather than those of the seafood companies are used hereafter as the basis for further discussion in this report. The same State reports indicate that 4,192 barrels, approximately 14 percent of the total or 440 tons were received via boat landings in Westwego, and the remainder by truck from distant ports. (See tables 1 and 2, appendix I.)¹ The economic survey detailed in appendix I¹ shows that the weighted-average cost of trucking a barrel of shrimp from the 5 locations that presently supply the majority of the shrimp to Westwego canneries and seafood dealers is \$2.91. Computation of benefits has therefore been based on savings possible from diversion of shrimp from truck to boat transportation, at no increase in the present total receipts of shrimp at the port. It

¹ Not printed.

is estimated that after provision of an adequate channel approximately 45 percent of the total receipts will arrive via water and approximately 55 percent by road. The intricacies of the seafood industry preclude the possibility and the desirability of the complete elimination of the use of truck hauling of shrimp.

29. In the handling of seafood a great amount of ice must be used to insure the edibility and freshness of the product. Ice produced in Westwego in 1947 and 1948 amounted to 2,723 and 2,845 tons, respectively. The principal consumers were the seafood companies and the fishing boats operating for various seafood processors. No records exist showing the ultimate use of the ice but it is estimated that in 1947 approximately 1,830 tons were carried over Bayou Segnette and in 1948, 2,300 tons.

30. While a considerable quantity of crabmeat is packed in Westwego, the crabs are transported to plants almost entirely by trucks. Crabs are caught in various shallow bays and lakes by fisherman in small inboard powered skiffs, and taken to the nearest landing where the catch is picked up by trucks operated by crab buyers. Speed is necessary to insure delivery at the factory of the crabs while still alive. Little probability exists that any large quantity of crabs will move to the plants direct by water.

31. Neither of the two firms presently handling oysters in Westwego is likely to make use of Bayou Segnette in transporting their raw material. The firm engaged in canning operations derives its factory supply from natural oyster reefs lying east of the Mississippi River. The water route from these reefs is too long for practical use and trucks are employed to haul the product from primary oyster landings to Westwego. The dealer who supplies oysters to the counter trade necessarily uses trucks for delivery to his customers, and therefore finds it advantageous to obtain his supply by the same means.

32. No definite savings in transportation of oil is involved at present. Unforeseeable benefits are considered to be a future possibility, such as the industrial development now taking place at Empire, La., on the waterway, Empire to the Gulf of Mexico. (See appendix III.)¹ There are now under construction and partially in operation at Empire, 1 shrimp and oyster packing plant, and 2 plants for processing menhaden into fish oil and animal feed. The total construction cost of these plants will be approximately \$400,000. Two or more oilfield supply concerns are opening branch offices at Empire to service offshore drilling operations. The New Orleans Lower Coast Railroad (Missouri Pacific Lines) has reconsidered plans to abandon their existing rights-of-way to Buras and the bridge at Empire, and instead will construct a new bridge and provide services to the menhaden plants whose products will be moved to market via rail.

33. *Vessel traffic.*—Because Bayou Segnette is not a Federal project, trips and drafts of vessels using this waterway are not required to be reported. However, available records of the Westwego Canal & Terminal Co. and of the 7 seafood companies establish that in excess of 500 vessel round trips were made into the port of Westwego in 1948 by a total of 105 licensed motor vessels engaged in shrimping. Sixty of them claimed Westwego as their home port. Forty-five were from other points of registry. Vessels with home port of Westwego have drafts, when fully loaded, ranging from 1 foot 6 inches to 5 feet 2 inches; and those from other points from 3 feet 6 inches to 6 feet 6 inches.

¹ Not printed.

Only 12 trips were made by vessels with full load draft of less than 3 feet.

34. The drafts of vessels with home ports of Golden Meadow, Lafitte, Grand Isle, Venice, and Pointe-a-la-Hache are shown in appendix X.¹

35. *Difficulties attending navigation.*—In the report of 1931 the shallowest depths were 4.5 feet below MLG, with surface widths varying from about 100 to 300 feet, except a controlling depth of 2 feet in Bayou Bardeaux. During the fiscal year 1945, the sum of \$2,396.82 was expended by the New Orleans district under the provision of Rivers and Harbors Act of October 17, 1940, in removing snags and shoals from Bayou Segnette.

36. The severe hurricane of September 19, 1947, littered Bayou Segnette with fallen trees, branches, spanish moss, and other debris. The Thomas Jordan Co., Inc., produced bills to substantiate repairs to shafts and propellers totaling approximately \$1,000 for a single month. Numerous vessels were noted on Bayou Segnette and Company Canal out of commission or on the ways undergoing repairs.

37. During the fiscal years 1948–49, \$20,278.61 was expended under authority of section 3 of the Rivers and Harbors Act approved March 2, 1945, in clearing and snagging and channel improvement of Bayou Segnette. The work was performed between April and August 1948 and extended from mile 1.5 to mile 7.5, a length of 6 miles. However, the volume of work possible of accomplishment with this limited allotment was insufficient to produce permanent results. Snags, stumps, and soft material from the wide bayou bottom soon reappeared within the snagged and centrally improved section, reducing it to its former condition.

38. Since the report of 1931, there has been a progressive deterioration of controlling depth in Bayou Segnette from 4.5 feet to 2.5 feet below MLG, with no appreciable difference in its width, nor in the controlling depth over the bars in Lake Salvador. The present controlling depth in Bayou Segnette of 2.5 feet below MLG, makes navigation hazardous and uncertain, and practically impossible at low tide. Even when passage is attempted with a favorable wind tide, the deeper draft boats drag the soft bottom and clog their water pumps with silt. Numerous mud lumps, shoals, and stumps hidden under water create difficulties to navigation and cause damage to boat hulls and propellers. These hindrances render travel on the bayou slow and expensive. No official record of groundings and hull damages is maintained. However, at the 1949 public hearing in Westwego, the Robinson Caning Co. exhibited data compiled from a canvass of six boat owners regarding obstructions in Bayou Segnette and the cost of repairs to their craft as a result of striking these obstacles. Expenditures for repair work varied from \$150 to \$1,800 per annum per boat.

39. The primary routes from Westwego, La., to the fishing grounds to the south is by way of the Barataria Bay Waterway and Bayou Lafourche. The Barataria Bay Waterway is a 5- by 50-foot Federal project, and is navigated by shrimping vessels with drafts of 5 feet and less. The central depths exceed the project depth, but the cross section is V-shaped and depths decrease rapidly on either side of the thalweg. Bayou Lafourche is a 6- by 60-foot Federal project and

¹ Not printed.

depths in the bayou exceed the project depth, however, the bottom width is limited. Shrimping vessels are customarily equipped with a false keel which is easily renewed. The false keel allows them to drag bottom in the soft muds encountered without injury to the hull itself. When the vessels are placed on the ways for bottom painting the false keel is inspected and if too badly worn is replaced. Such operational practice is not possible in waterways which have stumps or logs imbedded in the bottom as such obstacles cause costly damages to hull, rudder, propeller, or shaft.

40. Bayou Lafourche and the Barataria Bay Waterway are now navigated by shrimping vessels with drafts of 5 feet and less. However, due to obstructions and water depths in Bayou Segnette vessels now utilizing Bayou Lafourche and the Barataria Bay Waterway cannot reach Westwego without sustaining hull damage and experiencing difficulties brought about by lack of water depths. The most desirable shrimp catch is the so-called jumbo shrimp which are found in offshore waters of the Gulf of Mexico, and recent searches to discover new shrimping grounds have resulted in the discovery of shrimp in commercial quantities in waters deeper than those previously fished, and the same search has also found a new shrimp (the "pink" shrimp) in commercial quantities in the deeper offshore water. Larger vessels, capable of withstanding the rigors of open water are necessary to take advantage of these new offshore fishing grounds as well as those offshore areas fished at present.

41. *Water power and other special subjects.*—Water power and other special subjects are not involved. The dehydration plant, mentioned under "Tributary Area" as being recently completed, should assist materially in the elimination of a local pollution problem in Company Canal previously caused by the dumping of shrimp hulls and crab shells into the canal and into Bayou Segnette. These refuse products are being converted by the plant into fertilizer. Further elimination of stagnation and pollution in the canal is a minor problem for solution by local interests.

42. *Plan of improvement.*—Since 1937, when extensive concentrations of large shrimp were discovered in deep offshore waters in the Gulf of Mexico, the trend in construction of shrimping vessels in Louisiana has been toward drafts in excess of 6 feet. Written promises from owners of such deeper draft vessels are on file in the New Orleans district that they will bring shrimp into the port of Westwego after its improvement. Knowing the type of eventual traffic to be served and the nature of the bottom materials to be encountered, particularly between miles 1.5 and 7.25, the experience gained from previous work in Bayou Segnette indicates the necessity for project dimensions of 9 feet by 60 feet. Lesser dimensions would result in early requests for project enlargement.

43. The plan of improvement considered herein is the provision of a channel dredged to a depth of 9 feet below mean low gulf level over a bottom width of 60 feet commencing at the southern end of Company Canal and following the existing channel of Bayou Segnette (including its cutoffs) southward to approximate mile 7.25; thence southerly via a new land cut lying to the east of Lake Salvador, to Bayou Villars at mile 13.80. The initial cost of the proposed route is greater than that for improving the existing route, but its maintenance costs would be less. The new route is 1 mile shorter than the existing route and

landlocked throughout its length. Navigation over the new route would be much easier than over the 3 lengthy shallow bars and 4½ miles of open water now in use. Maintenance of the existing route across the three bars and the open water of Lake Salvador to a depth below the natural depth of the lake would be expensive unless parallel protection dikes were placed along both sides of the channel. Without such dikes, maintenance dredging would be largely ineffective owing to the rapidity of resilting. Neither the proposed nor the existing route crosses any highways or railroads. Two crude-oil pipelines will require lowering at points of crossing the waterway. All rights-of-way and spoil disposal areas will be located in wooded or marshland. All spoil should be placed so as to avoid any interference with existing drainage outlets.

44. Overdepth dredging to the extent of 1 foot is provided for and included in the estimate of cost.

45. *Aids to navigation.*—It is the opinion of the commander, Eighth Coast Guard District, that no aids to navigation will be required for the proposed channel. He further states that the proposed alinement of the channel in a land cut appears to be the most advantageous to the marine interests. A copy of his letter is contained in appendix VI.¹

46. *Estimate of first cost and annual charges.*—Based upon prices current during September 1950, the estimated first cost and annual charges for the proposed improvement are tabulated below. Detail computations are contained in appendix IV.¹

Feature	Federal	Non-Federal	Total
Initial construction:			
Dredging.....	\$495, 750	\$6, 250	\$502, 000
Rights-of-way.....		24, 625	24, 625
Readjustment of pipelines.....		6, 250	6, 250
Construction of wharf.....		21, 250	21, 250
Total.....	495, 750	58, 375	554, 125

Above estimates of first cost include contingencies, engineering, inspection, and overhead.

Feature	Federal	Non-Federal	Total
Annual carrying charges:			
Interest.....	\$14, 870	\$2, 040	\$16, 910
Amortization.....	4, 400	450	4, 850
Loss of taxes.....		455	455
Maintenance.....	6, 250	1, 690	7, 940
Hyacinth removal.....	5, 000	300	5, 300
Total.....	30, 520	4, 935	35, 455
Less increased income on company canal.....		-375	-375
Net annual charges.....	30, 520	4, 560	35, 080

47. *Estimate of benefits.*—(a) At prices as of September 1950, the computation of benefits is based on savings from diversion of shrimp from trucks to boat transportation at no increase in the present total receipts of shrimp at the port; upon reduction in the cost of existing boat transportation; and upon reduction in damage to boats. At present, only 14 percent of the total receipts of shrimp arrive at the

¹ Not printed.

port via boat transportation. It is estimated that after provision of an adequate channel approximately 45 percent of the total receipts will arrive via boat, thus eliminating some of the high cost of truck transportation and avoiding dehydration losses owing to that type of transportation. Improvement of the waterway will reduce the cost of existing boat transportation and will reduce damage to boats through removal of existing obstructions to navigation. Savings from these sources through use of the improved waterway are considered to be the true measure of public benefit attributable to the project, although in so doing, no account is taken of the maximum possible use of existing improved waterways in the vicinity of the project. The benefits are summarized and totaled as follows:

Savings on transportation of shrimp diverted from trucks to boats-----	\$24, 885
Reduction in cost of existing transportation of shrimp by boat-----	4, 640
Reduction in damage to boats in existing deliveries of shrimp-----	13, 200
Total-----	42, 725

Benefits have been estimated on the basis that the existing Barataria Bay Waterway and Bayou Lafourche are subsequently deepened to at least a 9-foot depth. Authorized surveys of such improvements have been initiated.

(b) In considering the maximum possible use of existing improved waterways, the Mississippi River must be discounted. Owing to the abandonment of the Westwego lock, entry into the port of Westwego directly from the river is now impossible. Construction of a wharf in the Mississippi River near the head of Company Canal for docking of shrimp boats is considered impracticable because of the upstream proximity of existing wharves for deep draft vessels engaged in coastwise and foreign trade (references Nos. 8, 9, 10, and 11, port facilities map, port of New Orleans, Port Series No. 20, revised 1947); and because of the objectionable handling (manual or mechanical) of the perishable commodity across levee and highway that would be made necessary by docking of shrimp boats at such a wharf.

(c) Harvey Canal (Intracoastal Waterway-gulf section, 12 by 125 feet) is the only alternative location for construction of suitable slip and wharf facilities as a substitute for the port of Westwego in order to make maximum possible use of an existing improved waterway. However, owing to the extensive industrialization along the banks of Harvey Canal and to the congestion of heavy tows in the canal, the location of an alternate port there would be highly unattractive to shrimp boats. Boat receipts of shrimp at the Southern Shellfish Co., located at mile 0.20 (Intracoastal Waterway, gulf section, west of Harvey lock), has steadily declined from approximately 76 percent of its total receipts in 1939 to approximately 30 percent in 1948; trucking providing the balance of their receipts. This decline is attributable to the dangers encountered by shrimp boats in navigating a restricted waterway so heavily traveled by large tows. Mooring, even in a slip off such waterway, is dangerous to small boats because of wave action created by the passing tows. Being located only 500 feet from the busy Harvey lock, the Southern Shellfish Co. continues its trucking operations to its plant on an improved waterway as an alternative to the more expensive relocation of its plant at a more desirable water front. A detailed investigation of the benefit-cost ratio based on the utilization of a site on Harvey Canal as an alterna-

tive to the improvement of Bayou Segnette showed that the Harvey Canal location was unfavorable.

(d) The quiet water in the port of Westwego is ideal for safe docking of shrimp boats and miscellaneous small craft. The locality is conveniently accessible to New Orleans by road and rail via the Mississippi River bridge, and to west bank communities via motor and bus service. Adequate labor supply is thus assured. Public utilities, such as water, gas, oil, and electricity are available. Excellent fire protection is provided, with low insurance rates. These advantages and lack of passing tows make the waterway definitely attractive to shrimp boats.

(e) No definite savings in transportation of oil is involved at present. Prospective savings are considered to be a future possibility, but not claimed at this time. Little probability exists, at this time, that the proposed improvement will benefit any miscellaneous freight. Unforeseeable industrial and fishery expansion such as now taking place at Empire, La., are a likely possibility. See appendix III.¹ Additional incidental benefits may be expected to follow improvement of the waterway such as recreational benefits; a harbor for yachts and miscellaneous craft; and from a general enhancement to the living conditions of the surrounding community.

(f) Details of the economic survey are appendix I.¹

48. *Comparison of benefits and costs.*—On the basis of those benefits accruing to the shrimping industry alone, the favorable ratio of estimated annual benefits to estimated annual charges is 1.22 to 1. The addition of other possible, but unevaluated benefits which are considered likely to eventuate from the project would give a higher ratio as the true relation to project costs.

49. *Proposed local cooperation.*—It is proposed that the following local cooperation be prescribed:

(a) Provide without cost to the United States adequate rights-of-way for excavation of the channel from the head of Bayou Segnette at its junction with Company Canal to Bayou Villars.

(b) Provide without cost to the United States easements and suitable disposal areas necessary for construction of the project and for obtaining maintenance when and as required.

(c) Accomplish and maintain without cost to the United States all alterations in pipelines, drainage, and other facilities necessary for construction of the project.

(d) Hold and save the United States free from damages resulting from construction and subsequent maintenance of the project.

(e) Provide and maintain without cost to the United States a minimum depth of 7 feet in Company Canal on a minimum bottom width of 30 feet with transit at published rates open to all on equal terms.

(f) Provide without cost to the United States adequate measures to keep Company Canal free of hyacinths and other growths obstructive to navigation.

(g) Provide and maintain without cost to the United States a public wharf not less than 20 feet wide and 200 feet long near the head of Bayou Segnette accessible to the highways, and open to all on equal terms.

¹ Not printed.

(h) Agree to cooperate with the Corps of Engineers in preventing the release of water hyacinths and other growths obstructive to navigation, from local drainage ditches into the project channel.

50. *Allocation of costs.*—Allocation between Federal and non-Federal agencies is set forth above in paragraph entitled "Estimates of First Cost and Annual Charges."

51. *Coordination with other agencies.*—The extent of consultation with State and Federal agencies and local organizations is indicated under "Scope of Survey."

52. The official views of the United States Department of the Interior, Fish and Wildlife Service, contained in appendix II¹ are "that the effects of the project on fish and wildlife resources would not be significant." The Louisiana Department of Public Works sponsored the improvement at the public hearings held by the New Orleans District in Westwego, March 20, 1947, and February 8, 1949, and is therefore in favor of the project. Appendix VII¹ contains a copy of a letter dated November 28, 1950, giving the Department's official views in favor of the project. The official views of the Louisiana Department of Wildlife and Fisheries have not been received to date. The police jury of Jefferson Parish in a letter to the district engineer dated December 29, 1950, has gone on record as concurring with the local cooperation necessary and their official comments are contained in appendix VIII.¹

53. *Discussion.*—Bayou Segnette Waterway, connecting with the Gulf Intracoastal Waterway and thence via the Mississippi River and the Barataria Bay and Bayou Lafourche Waterways to the Gulf of Mexico, is used by fishing boats to supply the packing plants at the head of Bayou Segnette and on Company Canal with fresh seafood for canning; to reach repair facilities; and to obtain supplies, fuel and ice. Company Canal and the head of Bayou Segnette provide an excellent terminal and harbor area for the port of Westwego. It is ideal for the safe docking of shrimp boats, free from the hazards created by heavy tows traversing an improved through waterway. Ample stores and facilities are located on Company Canal for icing and supplying, building and repairing boats. The canal and the upper portion of Bayou Segnette are well served by highways and two branch line railroads. The locality is conveniently accessible to New Orleans by road and rail via the Mississippi River bridge, and to west bank communities via motor and bus service. Adequate labor supply is thus assured. Public utilities such as water, gas, oil and electricity are available. In addition to these facilities there is ample room for expansion by the seafood and other industries. The Port of Westwego has first class fire and police protection, good schools and churches, and an abundant supply of good water with attendant low insurance rates.

54. The shallow controlling depths in the bayou and over the bars in Lake Salvador and Bayou Bardeaux, and numerous underwater obstacles make the existing waterway difficult for water traffic. In consequence, most of the seafood is trucked to the processing plants from distant ports. To remedy this unfavorable condition, a snag-free channel of adequate dimensions is desired by local interests to afford safe and expeditious passage for all fishing vessels wanting to bring cargo to Westwego.

¹ Not printed.

55. In 1948 a total of 3,100 tons of shrimp was received in the port of Westwego, approximately 14 percent of which arrived via boat and the remainder via truck from distant ports. In the same year approximately 2,300 tons of ice were moved over the waterway in the same boats delivering shrimp. It is estimated that after provision of an adequate channel, approximately 45 percent of the total receipts of shrimp at Westwego will arrive by boat. This diversion of a portion of the fishery shipments from trucks to boats will effect a net saving of about \$1.23 a barrel of shrimp plus accompanying reduction in mutilation and dehydrating losses on a total of about 9,242 barrels. The improved channel will effect additional savings in reduced operating costs of existing boat traffic and in reduced cost of damage to boats. Total estimated annual benefits amount to \$42,725. In recent years the trend has been to use larger and deeper draft vessels following the development of lucrative shrimping in the deep waters of the open gulf. The owners and operators of a number of these larger shrimp vessels have filed in the New Orleans district written promise to use an improved channel for boat delivery in Westwego.

56. The possibility of an alternate shrimp port on Harvey Canal, in order to make possible the maximum use of existing improved waterways, has been explored and found not to be economically justified.

57. Preliminary examination of the Barataria Bay and Bayou Lafourche Waterways have indicated surveys are warranted to ascertain the desirability for the deepening of these waterways to better serve the growing development of mineral resources of the gulf region. While these surveys have been authorized and work thereon initiated, progress is slow due to the curtailment of funds during the present emergency preparedness program in accordance with Presidential request.

58. As the city of Westwego and adjoining areas along the west bank of the Mississippi River opposite New Orleans will benefit from the improvement of these waterways, it is considered that Bayou Segnette should be improved to become an integral portion of the desired comprehensive navigation development of streams and bayous between the East Atchafalaya protection levee and the Mississippi River. The plan of improvement and estimated benefits to be derived therefrom are predicated on this assumption.

59. The most practical plan for meeting the desires of the majority of local interests is the provision of a landlocked channel as shown on plate 2 attached. As described under plan of improvement, its project dimensions are 9 feet deep below mean low gulf level on a bottom width of 60 feet extending from the southerly end of Company Canal to the Intracoastal Waterway, and so located as to avoid 4.5 miles of open water in Lake Salvador. There is no known opposition to the recommended alinement. The plan of improvement fully meets the desires of the majority of local interests.

60. The preliminary examination of Bayou Segnette indicated a plan of improvement utilizing the bayou to its entrance into Lake Salvador and the use of that lake and connecting waterways to connect with the Gulf Intracoastal Waterway. While this route could be improved to a 9-foot depth at smaller initial cost than the recommended route, the channel across the lake would be difficult and expensive to maintain without parallel protecting dike. Experience has shown that owing to the rapidity of resiliing of unprotected chan-

nels in open water, the cost of such channels to depths greater than the natural depth of the lake or bay is excessive. Annual maintenance of the existing route to 9 foot depth would greatly exceed that of the recommended plan. The police jury of Jefferson Parish has voiced its opinion favoring the new alinement of the waterway and has stated its assurance of assuming the costs of rights of way and disposal areas required therefor.

61. The Federal first cost of the project is estimated at \$495,750 and the total annual charges are estimated at \$35,080. The annual benefits are estimated at \$42,725. The total benefit to cost ratio, 1.22 to 1, indicates the plan of improvement is justified.

62. It is proposed that all costs in connection with the acquisition of rights-of-way and spoil disposal easements; alterations in utilities and other facilities; construction and maintenance of public wharf near the head of Bayou Segnette; provision and maintenance of minimum dimensions of channel in Company Canal; keeping Company Canal free of hyacinths and other growths obstructive to navigation; and in cooperation with the Corps of Engineers in preventing the release of hyacinths and other growths obstructive to navigation from local drainage ditches into the project channel, will be borne by local interests. All costs in connection with the construction and maintenance of the waterway, removal therefrom of hyacinths and other growths obstructive to navigation, and construction and maintenance of aids to navigation, will be borne by the United States.

63. Dredging of Company Canal to a depth greater than 7 feet was not considered practicable because of the possibility of damage to existing structures and wharves which would result from sloughing bank. The 7-foot depth which local interests are required to dredge the canal is not considered to be a handicap to the larger shrimp vessels in that they will be navigating this short waterway at a low rate of speed because of necessity of preventing wave wash damage to moored vessels and structures. When traveling at reduced speed the vessels will greatly reduce the "squat" customary at the higher speed which is desirable and necessary on the 9-foot depth to be provided. In addition, the bottom of Company Canal being a soft mud will permit a slight dragging of bottom by vessels as the absence of stumps and logs will not cause damage to the hull or underwater parts of the vessel.

64. The fact that Company Canal is privately owned is not considered detrimental to the proposed project. Theoretically it might be possible for the owners to impose a schedule of charges and regulations for use of the canal that would tend to discourage shrimp boats from serving the packing plants at Westwego. Such a course of action on the part of the owners is not considered likely as the largest plant is not located on Company Canal, but on Bayou Segnette proper, where no charges or regulations are applicable. If such a schedule were put in effect it would probably result in the moving of plants located on the private canal to sites on the 9-foot section of Bayou Segnette. The moving of the plants would most likely result in the failure of the canal company. The canal company would be more likely to encourage the fishing vessels to serve the plants located along the canal where they would receive benefits rather than drive them to do business solely with the plant not on the canal or force the packing plants to change locations which would be equally harmful to their

interests. With Bayou Segnette improved it is quite possible that the plants on Company Canal will absorb the canal charges on vessels trading with their plants.

65. *Conclusion.*—It is concluded that the most suitable plan of improvement is a partial relocation as described under Plan of Improvement for the reasons that it fully meets the desires of the majority of local interests, involves the least annual cost of maintenance, and is 1 mile shorter than the existing route. No bridges cross the waterway. Lowering the two pipelines will be required as a feature of local cooperation. Funds representing the estimated complete Federal first cost in the total amount of \$495,750 should be provided in one lump sum for completion of the project in one working season. Funds should thereafter be provided at the rate of \$11,250 per annum for maintenance, which includes \$6,250 for dredging and \$5,000 for removal of hyacinths, when and as required.

66. *Recommendation.*—It is recommended that a project be adopted for Bayou Segnette Waterway, La., to provide for construction and maintenance of a channel 9 feet in depth below mean low gulf level on a bottom width of 60 feet extending from the head of Bayou Segnette at its junction with Company Canal to and through a portion of Bayou Villars to the Intracoastal Waterway, gulf section, near Jones Point, substantially as shown on plate 2 attached; subject to such minor changes in alinement as may be approved by the Chief of Engineers, at an estimated Federal first cost of \$495,750 and an estimated Federal annual cost of \$11,250 for maintenance, which includes \$6,250 for dredging and \$5,000 for removal of hyacinths; and further subject to the conditions that local interests:

(a) Provide, without cost to the United States, adequate rights of way for excavation of the channel from the head of Bayou Segnette at its junction with Company Canal to Bayou Villars.

(b) Provide, without cost to the United States, easements and suitable spoil disposal areas necessary for construction of the project and for subsequent maintenance when and as required.

(c) Accomplish and maintain without cost to the United States all alterations in pipelines, drainage, and other facilities necessary for construction of the project.

(d) Hold and save the United States free from damages resulting from construction and maintenance of the project.

(e) Provide and maintain, without cost to the United States, a minimum depth of 7 feet in Company Canal on a minimum bottom width of 30 feet, with transit at published rates open to all on equal terms.

(f) Provide, without cost to the United States, adequate measures to keep Company Canal free of hyacinths and other growths obstructive to navigation.

(g) Provide and maintain, without cost to the United States, a public wharf not less than 20 feet wide and 200 feet long near the head of Bayou Segnette accessible to highways and open to all on equal terms.

(h) Agree to cooperate with the Corps of Engineers in preventing the release of water hyacinths and other growths obstructive to navigation, from local drainage ditches into the project channel.

CHAS. G. HOLLE,
Colonel, CE,
District Engineer

[First endorsement]

OFFICE, DIVISION ENGINEER,
 LOWER MISSISSIPPI VALLEY DIVISION,
 CORPS OF ENGINEERS,
Vicksburg, Miss., March 23, 1951.

Subject: Survey report of Bayou Segnette Waterway, Louisiana.
 To: Chief of Engineers, Department of the Army.

The division engineer concurs in the findings of the New Orleans district engineer, CE, that the clearing and enlargement of the shallow and partially obstructed channel of Bayou Segnette, below Company Canal in Westwego, La., with a 9 by 60-foot land cut extension to and through a portion of Bayou Villars to the Intracoastal Waterway gulf section, near Jones Point, will greatly facilitate and increase existing bayou traffic and has an economic benefit-cost ratio of 1.22 to 1. He also concurs in the recommendation, in paragraph 66 of the district engineer's report, for the construction of the enlarged and new channels at an estimated initial cost to the United States of \$495,750 and an estimated Federal annual cost of \$11,250 for maintenance subject to specified requirements of local cooperation.

P. A. FERINGA,
Brigadier General, CE,
Division Engineer.

APPENDIXES MADE IN CONNECTION WITH THE REPORT OF THE
 DISTRICT ENGINEER

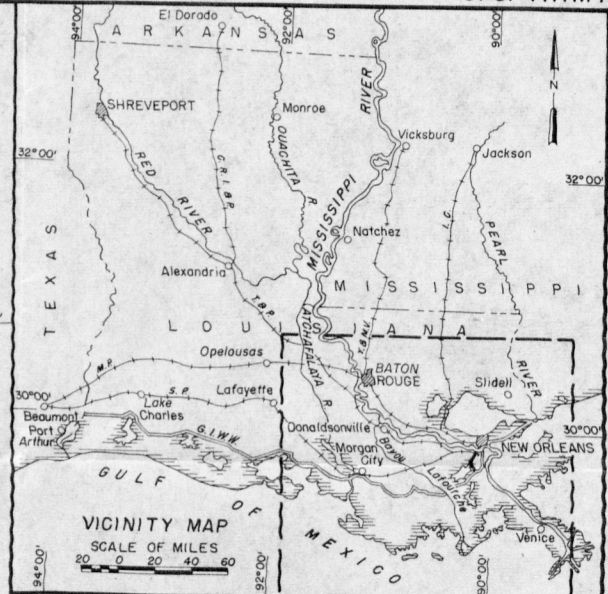
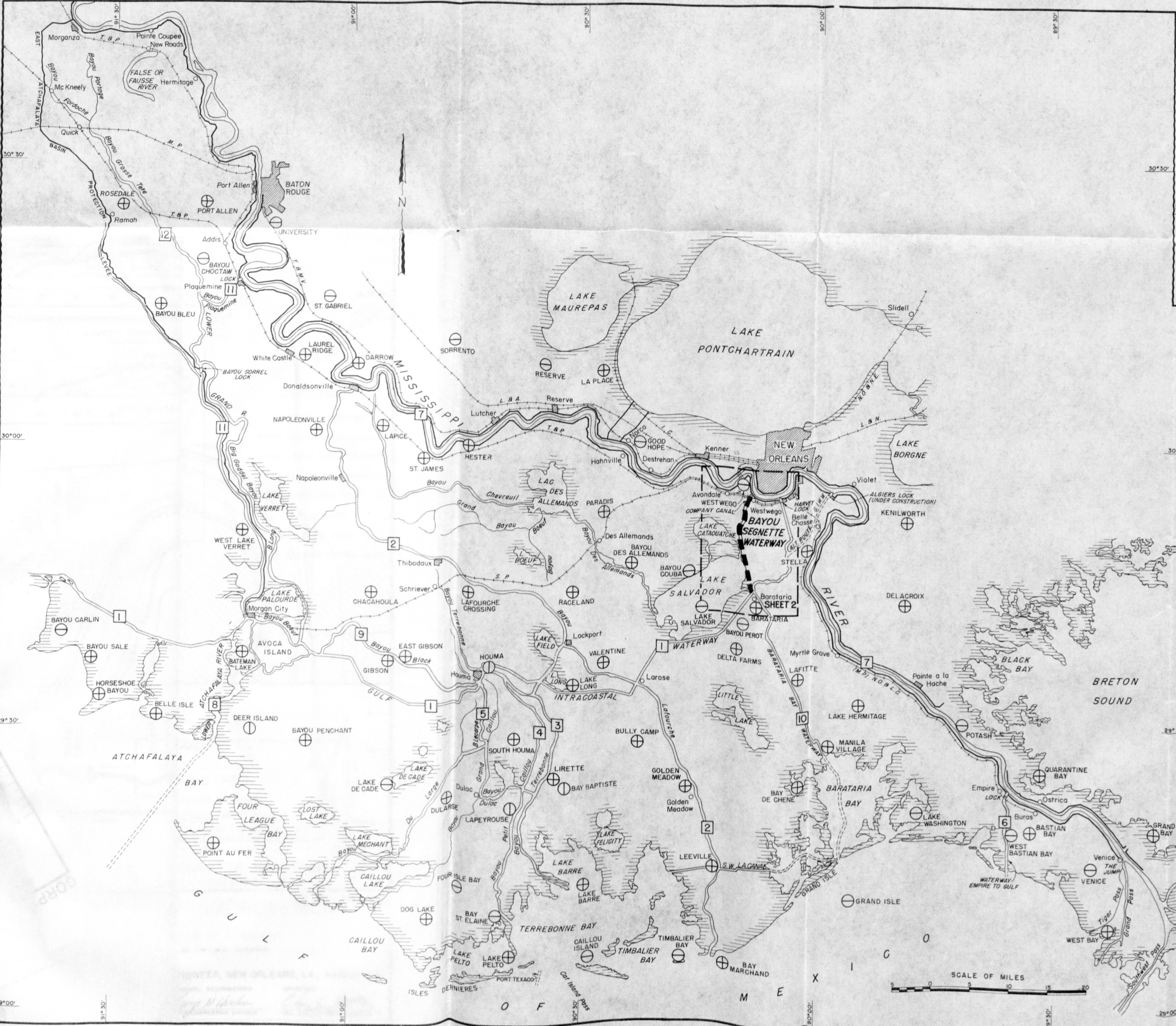
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- Appendix I. Economic Survey of Shrimping—Port of Westwego, La.
- Appendix II. Comments of Fish and Wildlife Service.
- Appendix III. Memorandum—Industrial Development at Empire, La.
- Appendix IV. First Costs and Annual Charges.
- Appendix V. Alternate Port for Unloading Shrimp—Harvey Canal.
- Appendix VI. Comments of the United States Coast Guard.
- Appendix VII. Comments of the Department of Public Works, State of Louisiana.
- Appendix VIII. Comments of the Office of Police Jury, Jefferson Parish.
- Appendix IX. Comments of the Westwego Canal & Terminal Co.
- Appendix X. Loaded Drafts of Shrimping Vessels.

ILLUSTRATIONS MADE IN CONNECTION WITH THE REPORT OF THE
 DISTRICT ENGINEER

- Plate I. General map.
- Plate II. Plan of improvement.





- EXISTING PROJECTS
- 1 Gulf Intracoastal Waterway
 - 2 Bayou Lafourche
 - 3 Bayou Terrebonne
 - 4 Bayou Petit Caillou
 - 5 Bayous Grand Caillou and Lecarpe
 - 6 Waterway from Empire, La. to the Gulf
 - 7 Mississippi River, Baton Rouge to the Gulf
 - 8 Atchafalaya River, Morgan City to the Gulf
 - 9 Bayou Black
 - 10 Barataria Bay and Connecting Waters
 - 11 Plaquemine - Morgan City alternate route, Gulf Intracoastal Waterway
 - 12 Bayou Grosse Tete

- LEGEND
- Oil field
 - Gas field
 - Oil and gas field
 - Plan of improvement

**BAYOU SEGNETTE WATERWAY
LOUISIANA**

GENERAL MAP

SHEET 1 OF 2 SHEETS
SCALES AS SHOWN

OFFICE OF THE DISTRICT ENGINEER, NEW ORLEANS, LA., MARCH 1951

SUBMITTED: *James L. Babin* APPROVAL RECOMMENDED: *Donald Henderson* APPROVED: *Charles W. Wren*

SHEET, PLANNING AND REPORTS BRANCH CHIEF ENGINEERING DIVISION COL., U.S. DISTRICT ENGINEER

DRAWN: TRACED: CHECKED: TO ACCOMPANY SURVEY REPORT FILE NO. H-2-17214/1

DATED: 1 MARCH 1951

